

CLAIMS

- 1) An isolated HXT3 hexose transporter or functional fragments thereof with an improved capacity to transport carbohydrates.
- 5 2) An isolated HXT3 hexose transporter having an improved capacity to transport fructose with respect to the capacity to transport fructose of a wild type hexose transporter having SEQ ID NO 26.
- 10 3) An isolated HXT3 hexose transporter according to any one of claims 1-2, having an amino acid sequence which is selected amongst the group consisting of:
- a sequence derived from SEQ ID NO: 26 and having at least a mutation at a position selected from the group consisting of Gln 206, Leu 207, Met 208, Ile 209, Thr 210, Leu 211, Gly 212, preferably at Ile 209; or
 - 15 - SEQ ID NO: 27
- 4) An isolated HXT3 hexose transporter according to claim 3, additionally comprising at least a mutation at a position selected from the group consisting of Met 324, Leu 388, Tyr 389, Ile 392, Glu 414, Gly 415, Ile 449, Leu 471,
- 20 preferably being Met 324 Ile, Leu 388Met, Tyr 389 Trp, Ile 392 Val, Glu 414 Gln, Gly 415 Asn, Ile 449 Val or Leu 471 Ile.
- 5) An isolated nucleic acid sequence encoding the HXT3 hexose transporter according to any one of claims 1-4.
- 25 6) An isolated nucleic acid sequence according to claim 5, having a sequence according to SEQ ID NO 28, SEQ ID NO 29 or a functional homologue thereof.
- 7) Recombinant yeast cell transformed with a nucleic acid according to any one of
- 30 claims 5-6.
- 8) Process for obtaining a yeast cell with improved fructophilic properties wherein a yeast cell comprising a gene encoding an HXT3 transporter has been altered in such a way that the HXT3 transporter has an improved capacity to transport

fructose, comprising the steps of:

- a. mutating the HXT3 gene and
- b. selecting the yeast cell with improved fructophilic properties.

5 9) Yeast cell obtainable by the process according to claim 8.

10) Yeast cell according to any one of claims 7 or 9, wherein the yeast is
Saccharomyces cerevisiae, *S. uvarum*, *S. bayanus*, *S. pastorianus* or *S.*
paradoxus.

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11) Use of a yeast according to any one of claims 9 or 10 for fermentation of
carbohydrates.